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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,843

Applicant(s)

NAMGUNG, BALENTINO

Examiner

BRUK GEBREMICHAEL

Art Unit

3715

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2011 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The following office action is a **non-Final Office Action** in response to communications received on 03/29/2011.

Currently, claims 29, 35, 38, 40, 42, 44 and 54-56 have been amended; and therefore, claims 29-56 are pending in this application.

Response to Amendment

2. Applicant's amendment to the drawings is sufficient to overcome the objection set forth in the previous office action regarding the drawings. In addition, Applicant's amendment to the abstract is also sufficient to overcome the objection set forth in the previous office action with respect to the specification. Accordingly, the Examiner withdraws the objections.

Applicant's amendment to claims 29, 35 and 54 is sufficient to overcome the 35 U.S.C. 112, second paragraph rejection set forth in the previous office action. Accordingly, the Examiner withdraws the rejection.

NOTE: - Even though Applicant's remark filed on 06/04/2010 indicates that only claims 29-56 are elected for prosecution, currently claims 27 and 28 are not identified (or labeled) as being withdrawn.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- Claims 36 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 36 recites, "*the percussion signal generation means further comprises supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger*".

Applicant's disclosure describes that the percussion signal generation device comprises a *supporting means* of **a band or thimble shape** for supporting the piezoelectric element by surrounding a periphery of the trigger and being tightly attached to the inner surface of the trigger so as not to be detached (e.g. see Page 36, lines 8-12 of Applicant's disclosure). However, this discussion describes the **shape** of the *supporting means*, but not what the *supporting means* is. The specification appears to be silent regarding any element or material that corresponds to the supporting means recited in the above claim.

Note that even if reference numeral 104 in FIG 23 of the drawings is identified as the supporting means, one of ordinary skill in the art would not know what type of elements (or materials) this *supporting means* represent just from the reference numerals labeled in the figure(s) (see *response to argument (1)* below for detail).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claim 29- 44 and 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 29 recites, "*a laser light transmitter attached to the gun for shooting a laser light toward a target, wherein the magazine-shaped housing includes . . . the laser light transmitter having shooting signal input means . . .*" between lines 7-18; and independent claim 54 recites, *a laser light transmitter attached to the gun for shooting a laser light toward a target, the housing including . . . the laser light transmitter having shooting signal input means . . .*" in lines 8-19.

It is not clear whether the laser transmitter is recited as being part of the magazine housing, or generally as part of the simulation system.

5. As already presented in the previous office action, claims 29-53 and 55-56 invoke 35 U.S.C. 112, sixth paragraph since the claimed limitations are recited as a means plus function (**see previous office action for detail**).

Furthermore, as previously indicated, regarding the limitation "*supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger*", the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function. Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c) State on the record where the corresponding structure, material, or acts are set forth in the written description of the specification that perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01 (o) and 2181.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1996), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

- Claims 29, 31-34, 38-40, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046 in view of Marsac 2005/0219214 and further in view of Dawson 4,416,631.

Regarding claim 29, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001), a magazine-shaped housing, an upper tip of which is inserted and fixed into a magazine insertion section of the gun (Para.0064 and FIG 2C, label 26), a laser light transmitter attached to the gun for shooting a laser light toward a target, wherein the weapon housing includes a triggering signal input means for receiving the triggering signal (FIG 2B, label 31 and Para.0198), a microcomputer for generating a responsive shooting signal after receiving the triggering signal from the triggering signal input means, (Para.0154 and Para.0157-Para.0162), and shooting signal output means for supplying the shooting signal generated from the microcomputer to the laser light transmitter (Para.0269), the laser light transmitter having shooting signal input means for receiving the shooting signal outputted from the shooting signal output means and shooting a laser light based on the inputted shooting signal (Para.0265 and Para.0268), whereby a simulation is performed as if the target has been hit when the shot laser light is incident to a detecting element mounted on the target (Para.0302 and Para.0304).

Bartsch does not explicitly disclose, percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal; the magazine shaped

housing including a percussion signal input means, shooting mode designation means, a microcomputer.

However, Marsac discloses a video game apparatus for shooting game that teaches, a percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, and percussion signal output means for outputting the generated percussion signal and a percussion signal input means (Para.0030, Para.0035 and Para.0036).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to modify the invention of Bartsch in view of Marsac by incorporating an electric motor into the system that produces vibration when the trigger of the gun is activated, in order to generate a hammering or vibration effect similar to an actual weapon during firing so that the trainee would have a more realistic shooting experience.

Bartsch in view of Marsac does not explicitly teach, the magazine-shaped housing including a percussion signal input means, shooting mode designation means, and a microcomputer.

However, Dawson discloses a small arms firing simulator that teaches, a magazine shaped housing (FIG 3a) that includes a percussion signal input means for receiving a percussion signal outputted from a percussion signal output means (col.3, lines 65-67 and col.4, lines 1-20) shooting mode designation means for designating a shooting mode (FIG 3a, label 208), a microcomputer for generating a responsive shooting signal upon recognition of a shooting mode designated by the shooting mode

designation means after receiving the percussion signal from the percussion signal input means (FIG 3b, label "CONTROL CIRCUIT"); and shooting signal output means for supplying the shooting signal generated from the microcomputer (col.3, lines 40-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marc and further in view of Dawson by incorporating a magazine that has a processing circuit in order to control signal communications between the magazine and the weapon, and also by incorporating a multi-mode selector switch(s) on the magazine in order to allow the trainee to choose any required operating position (such as "Semi" or "Auto") so that the trainee would be able to practice different types of shooting operation using the simulator; thereby making the system more adaptive for a variety of training activities.

Regarding claims 31 and 32, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Marsac further teaches, the percussion signal generation means includes a switching element attached to a rear surface of the trigger for generating a percussion signal by being pushed due to a force of pulling the trigger (FIG 3, label 43); the percussion signal output means supplies the percussion signal to the percussion signal input means in either one of the wired or wireless manner (Para.0030).

Therefore, as already indicated above, it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to modify the invention of Bartsch in view of Marsac and further in view of Dawson by incorporating an electric motor into the system that produces vibration (as taught by Marsac), in order to simulate

hammering or vibration of the weapon as the user pulls the trigger (similar to operating an actual weapon) so that the trainee would have a more realistic shooting experience.

Regarding claim 33, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Dawson further teaches, the shooting mode controls the number of shooting of the laser light to correspond at least to any one of automatic, semi-automatic or locked mode of the gun with respect to a single percussion signal (col.2, lines 31-39).

Therefore, as already discussed above with respect to claim 29 above, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac and further in view of Dawson by incorporating a multi-mode selector switch(s) on the magazine in order to allow the trainee to choose any required operating position (such as "Semi" or "Auto") so that the trainee would be able to practice different types of shooting operation using the simulator; thereby making the system more adaptive for a variety of training activities.

Regarding claim 34, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further discloses, the shooting signal output means supplies the shooting signal to the shooting signal input means in either one of wired or wireless manner (Para.0269).

Regarding claims 38 and 39, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further implicitly discloses, the simulator housing further comprises a speaker for generating a necessary sound through control by the microcomputer; the sound includes at least more than one of a simulated shooting sound of the gun, a control command, or a report notifying abnormal operation of the simulation system (Para.0236).

Note that even if Bartsch in view of Marsac and further in view of Dawson does not explicitly teach, the speaker being on the magazine shaped housing, the speaker taught by Bartsch accomplishes the functional limitation of the speaker recited in the current claims (which is to produce sound relating to the shooting of the gun or any sound output related to operation of the weapon); and therefore, such particular location or placement of parts requires only a routine skill in the art (*In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Regarding claims 40 and 42, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Dawson further implicitly teaches, the magazine-shaped housing further comprises a flash generator for simulating a shooting flash of the gun (see e.g. col.1, lines 38-46); the magazine-shaped housing further comprises an impact generator for simulating a shooting impact of the gun (FIG 4, label 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac and further in view of Dawson by incorporating a suitable amount of pyrotechnic charge that would be ignited by electrical ignition, in order to simulate the flash and sound that

would be generated when an actual shotgun is fired, so that the trainee would have a more realistic training experience.

Regarding claim 43, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Dawson further implicitly teaches, the impact generator is at least either one of a piezoelectric element or a compressed gas discharger that can be vibrated by the electric signal (col.4, lines 38-52 and col.5, lines 1-13).

Therefore, as already indicated above, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac and further in view of Dawson by incorporating a suitable amount of pyrotechnic charge that would be ignited by electrical ignition, in order to simulate the flash and sound that would be generated when an actual shotgun is fired, so that the trainee would have a more realistic training experience.

Regarding claim 54, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising a housing inserted and fixed into a magazine insertion section of the gun and the housing has any one shape of a magazine, a cartridge or a bomb shell (Para.0064 and FIG 2C, label 26), a laser light transmitter attached to the gun for shooting a laser light toward a target (see FIG 2B, label 31), the simulator housing including a microcomputer for generating a responsive shooting signal after receiving triggering signal from triggering signal input means (Para.0154 and Para.0157-Para.0162), and shooting signal output means for supplying the shooting signal generated from the microcomputer to the laser light transmitter

(Para.0269), the laser light transmitter having shooting signal input means for receiving the shooting signal outputted from the shooting signal output means and shooting a laser light based on the inputted shooting signal (Para.0265 and Para.0268), whereby a simulation is performed as if the target has been hit when the shot laser light is incident to a detecting element mounted on the target (Para.0302 and Para.304).

Bartsch does not explicitly disclose, percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal; the housing including percussion signal input means for receiving the percussion signal outputted from the percussion signal output means, shooting mode designation means for designating a shooting mode of the laser light transmitter and a microcontroller.

However, Marsac discloses a video game apparatus for shooting game that teaches, a percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal and a percussion signal input means (Para.0030, Para.0035 and Para.0036).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to modify the invention of Bartsch in view of Marsac by incorporating an electric motor into the system that produces vibration, in order to simulate the hammering or vibration effect generated by an actual weapon during firing so that the trainee would have a more realistic shooting experience.

Bartsch in view of Marsac does not explicitly teach, the housing including percussion signal input means, shooting mode designation means for designating a shooting mode of the laser light transmitter and a microcomputer.

However, Dawson discloses a small arms firing simulator that teaches, a magazine housing (FIG 3a) that includes a percussion signal input means for receiving a percussion signal outputted from a percussion signal output means (col.3, lines 65-67 and col.4, lines 1-20), shooting mode designation means for designating a shooting mode (FIG 3a, label 208), a microcomputer for generating a responsive shooting signal upon recognition of a shooting mode designated by the shooting mode designation means after receiving the percussion signal from the percussion signal input means (FIG 3b, label "CONTROL CIRCUIT"); and shooting signal output means for supplying the shooting signal generated from the microcomputer (col.3, lines 40-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac and further in view of Dawson by incorporating a magazine that has a processing circuit in order to control signal communications between the magazine and the weapon, and also by incorporating a multi-mode selector switch(s) on the magazine in order to allow the trainee to choose any required operating position (such as "Semi" or "Auto") so that the trainee would be able to practice different types of shooting operation using the simulator; thereby making the system more adaptive for a variety of training activities.

- Claims 30, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046, in view of Marsac 2005/0219214, in view of Dawson

4,416,631 and further in view of Trabut 6,257,893.

Regarding claim 30, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Bartsch in view of Marsac and further in view of Dawson does not explicitly teach, the percussion signal generation means includes a piezoelectric element attached to a front surface of the trigger for generating a percussion signal by changing the shape thereof due to a force of pulling the trigger.

However, Trabut discloses a method and device for training the tactile perception of a marksman that teaches, a percussion signal generation means includes a piezoelectric element attached to a front surface of the trigger for generating a percussion signal by changing the shape thereof due to a force of pulling the trigger (FIG 3, label 38).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac, in view of Dawson and further in view of Trabut by incorporating a piezoelectric pressure sensor on the trigger of the simulating gun, in order to effectively detect the trainee's finger when pulling the trigger so that the system would send the appropriate signal to activate the laser module only when the trigger is pulled with sufficient force; thereby avoiding any error signal that may inadvertently activate the laser module.

Regarding claim 36, Bartsch in view of Marsac, in view of Dawson and further in view of Trabut teaches the claimed limitations as discussed above.

Trabut further teaches, the percussion signal generation means further comprises supporting means of a band shape for supporting the piezoelectric element by surrounding a periphery of the trigger (col.4, lines 5-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac, in view of Dawson and further in view of Trabut by including a housing unit such as a plastic martial to hold the pressure sensor together with the trigger (FIG 3, labels 38 and trigger not labeled) so that the pressure sensor would always be attached to the trigger during operation; thereby preventing functional error due to missing sensor.

Regarding claim 37, Bartsch in view of Marsac, in view of Dawson and further in view of Trabut teaches the claimed limitations as discussed above.

Even if Bartsch in view of Marsac, in view of Dawson and further in view of Trabut does not explicitly teach, "the percussion signal generation means further comprises skid-proof means located between the supporting means and a trigger protection frame for supporting the supporting means so as not to skid from the trigger", one of ordinary skill in the art would readily recognize the fact from the teaching of the combined references that the plastic material incorporated in Trabut's system is utilized to hold the piezoelectric pressure sensor to the surface of the trigger so that the pressure sensor would remain intact at all times.

Furthermore, it is an old and well-known practice (at the time of Applicant's invention was made) to implement any type of fastening method (such as gluing or tying) in order to securely attach one element against another, as this requires only a

routine skill in the art. Therefore, this does not distinguish the current invention from the prior art.

- Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046, in view of Marsac 2005/0219214, in view of Dawson 4,416,631 and further in view of Gallagher 4,624,641.

Regarding claim 35, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Bartsch further discloses, the laser light is a consecutive pulsar wave (Para.0272).

Bartsch in view of Marsac and further in view of Dawson does not explicitly disclose, the laser light complying with the Multiple Integrated Laser Engagement System (MILES) code rules.

However, Gallagher discloses a laser simulator for a firing port weapon that teaches, the laser light complying with the Multiple Integrated Laser Engagement System (MILES) code rules (col.4, lines 50-55 and col.6, lines 30-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac, in view of Dawson and further in view of Gallagher by incorporating a conventional electronic circuit that is used in standard MILES laser transmitter simulators, in order to generate laser pulses of appropriate wave wavelengths so that the system would be safe and reliable to perform any type of training.

Note that the above claimed feature is further indirectly suggested by Dawson (e.g. col.2, lines 6-15 and col.4, lines 13-20).

- Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046, in view of Marsac 2005/0219214, in view of Dawson 4,416,631 and further in view of Nadel 2005/0016514.

Regarding claim 41, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Bartsch in view of Marsac and further in view of Dawson does not explicitly teach, the flash generator includes a luminous element mounted on an external front surface of the housing.

However, Nadel discloses a projectile launching simulating device that teaches, a flash generator that includes a luminous element mounted on the simulation gun (FIG 4, label 12)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac, in view of Dawson and further in view of Nadel by incorporating a light flash generator coupled with a transparent flash light tube into the system, in order to produce a bright light that resembles the spark produced during an explosion of an actual gunshot, so that the trainee would have a more realistic experience when using the modified system; thereby making the modified simulator more attractive to the user.

Regarding claim 41, the criticality of the luminous element claimed, according to Applicant's disclosure, is to simulate the flash that is generated from the muzzle of a

gun when shooting a real bullet (e.g. Page 41, lines 24-25 and Page 42, lines 1-3 of Applicant's specification).

The prior art also describes that the transparent flash light tube (along with the flash light generator) is utilized to simulate the explosion of a gun shot (e.g. Nadel, Para.0029 and Para.0030).

Thus, even if the position of the luminous element with respect to the gun appears to be different in the case of Nadel's system (when compared to the position of the luminous element in the case of the current invention), the functional limitations of these luminous elements appear to be identical in both inventions.

Furthermore, Applicant has not disclosed any importance as to why the position of the luminous element with respect to the gun (i.e. positioning the luminous element on the magazine instead of any other parts of the gun) is critical to the current invention (or solves any stated problem); and therefore, the system of the prior art appears to work well for the intended purpose.

Moreover, such rearrangement or repositioning of a part does not patentably distinguish one invention from another. In *re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In *re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

- Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046, in view of Marsac 2005/0219214, in view of Dawson 4,416,631 and further in view of Chung 7,291,014.

Regarding claim 44, Bartsch in view of Marsac and further in view of Dawson teaches the claimed limitations as discussed above.

Bartsch in view of Marsac and further in view of Dawson does not explicitly teach, the magazine-shaped housing further comprises a wireless communication module for performing wireless communication.

However, Chung discloses a wireless data communication link in simulated weapon systems that teaches, a simulator comprising a wireless module attachable to any part of the device for performing wireless communication (col.3, lines 2-16 and col.4, lines 46-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Marsac, in view of Dawson and further in view of Chung by incorporating a wireless module into the system that facilitates communication between the different parts of the simulator, in order to minimize the weight and size of the shooting circuitry due to the complexity of the wiring so that operational error due to wiring error would be greatly reduced.

- Claims 45, 48, and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046.

Regarding claim 45, Dawson discloses the following claimed limitations: a simulated magazine of a magazine shape used in a gun simulation system (FIG 1, 3a),

including an upper tip inserted and fixed into a magazine insertion section of a gun (see FIG 3a, label 211), the simulated magazine comprising percussion signal input means for receiving a percussion signal generated by pulling of a trigger of the gun (see col.2, lines 40-49), shooting mode designation means for designating a shooting mode of the laser light transmitter (FIG 3a, label 208), a microcomputer for generating a responsive shooting signal upon recognition of a shooting mode designated by the shooting mode designation means after receiving the percussion signal from the percussion signal input means (FIG 3b, label "CONTROL CIRCUIT"); and shooting signal output means for supplying the shooting signal generated from the microcomputer.

Dawson does not explicitly disclose, a laser light transmitter attached to a gun barrel for shooting a laser light by pulling a trigger of a gun and simulating a hit of a target bearing a detecting element.

However, Bartsch discloses a target shooting system that teaches, a laser light transmitter attached to a gun barrel for shooting a laser light by pulling a trigger of a gun (Para.0265) and simulating a hit of a target bearing a detecting element (Para.302 and Para.304).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch by incorporating a laser light emitting module and a target comprising a detector device into the system, in order to allow the user to practice target shooting using laser light (instead of unsafe projectiles such as bullet); and also to record the hit or miss locations with respect to the designated target so that the user would know the type of practice

he/she needs to improve his/her score; thereby making the simulation system more challenging and appealing to different users.

Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson further discloses:

Regarding claim 48, a flash generator for simulating a shooting flash of the gun (col.1, lines 38-46),

Regarding claim 50, an impact generator for simulating a shooting impact of the gun (FIG 4, label 12),

Regarding claim 51, the impact generator is at least one of a piezoelectric element or a compressed gas discharger that can be vibrated by an electric signal (col.4, lines 38-52 and col.5, lines 1-13).

- Claims 46-47 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046 and further in view of Rayan 3,331,606.

Regarding claim 46, Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson in view of Bartsch does not explicitly teach, the magazine further compromising a speaker for generating a necessary sound through control by the microcomputer.

However, Rayan discloses a toy gun invention that teaches, a magazine further compromising a speaker for generating a necessary sound (col.2, lines 15-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Rayan by incorporating a speaker in the simulated magazine, in order to produce different types of gun-shot sounds during firing so that the user would have a more realistic and entertaining experience during the shooting training.

Regarding claim 47, Dawson in view of Bartsch and further in view of Rayan teaches the claimed limitations as discussed above.

Rayan further teaches, the sound includes at least more than one of a simulated shooting sound of the gun, a control command, or a report notifying abnormal operation of the simulation system (see col.1, lines 71-72 and col.2, lines 1-3).

Therefore, as already discussed above with respect to claim 46, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Rayan by incorporating a speaker in the simulated magazine, in order to produce different types of gun-shot sounds during firing so that the user would have a more realistic and entertaining experience during the shooting training.

Regarding claim 53, Dawson in view of Bartsch and further in view of Rayan teaches the claimed limitations as discussed above.

Bartsch further implicitly teaches, circuit test means for checking abnormal operation of each means, and notifying abnormality by means of the speaker, if found (Para.0236 and Para.0257).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Rayan by incorporating audible indicating means into the system (as taught by Bartsch), in order to indicate different operational status of the simulation system to the user so that the user would be alerted to take the appropriate steps to maintain the operational condition of the system before losing important data (e.g. replacing the battery when the system generates Five Short Beeps and Red Flashes).

- Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046 and further in view of Nadel 2005/0016514.

Regarding claim 49, Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson in view of Bartsch does not explicitly teach, the flash generator includes a luminous element mounted on an external front surface of the housing.

However, Nadel discloses a projectile launching simulating device that teaches, a flash generator that includes a luminous element mounted on the simulation gun (FIG 4, label 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Dawson in view of Bartsch and further in view of Nadel by incorporating a light flash generator coupled with a transparent flash light tube into the system, in order to produce a bright light that resembles the spark produced during an explosion of an actual gunshot, so that the

trainee would have a more realistic experience when using the modified system; thereby making the modified simulator more attractive to the user.

As already discussed above with respect to claim 41 above, regarding claim 49 the criticality of the luminous element claimed, according to Applicant's disclosure, is to simulate the flash that is generated from the muzzle of a gun when shooting a real bullet (e.g. Page 41, lines 24-25 and Page 42, lines 1-3 of Applicant's specification).

The prior art also describes that the transparent flash light tube (along with the flash light generator) is utilized to simulate the explosion of a gun shot (e.g. Nadel, Para.0029 and Para.0030).

Thus, even if the position of the luminous element with respect to the gun appears to be different in the case of Nadel's system (when compared to the position of the luminous element in the case of the current invention), the functional limitations of these luminous elements appear to be identical in both inventions.

Furthermore, Applicant has not disclosed any importance as to why the position of the luminous element with respect to the gun (i.e. positioning the luminous element on the magazine instead of any other parts of the gun) is critical to the current invention (or solves any stated problem); and therefore, the system of the prior art appears to work well for the intended purpose.

Moreover, such rearrangement or repositioning of a part does not patentably distinguish one invention from another. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the

position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

- Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson 4,416,631 in view of Bartsch 2003/0195046 and further in view of Cheshelski 5,842,300.

Regarding claim 52, Dawson in view of Bartsch teaches the claimed limitations as discussed above.

Dawson in view of Bartsch does not explicitly teach, a wireless communication module for performing wireless communication.

However, Cheshelski discloses a retrofittable laser and recoil system for a firearm that teaches, a wireless communication module for performing wireless communication (see col.23, lines 38-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Dawson and further in view of Cheshelski by incorporating an intelligent magazine that contains a wireless communication module into the system, in order to minimize the error and complexity of the shooting circuitry due to multiple wire connections so that operational error due to the complexity of the wiring would be greatly reduced; thereby making the system more efficient.

- Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartsch 2003/0195046, in view of Marsac 2005/0219214 and further in view of Cheshelski 5,842,300.

Regarding claim 55, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising a housing inserted and fixed into a magazine insertion section of the gun, and the housing has any one shape of a magazine, a cartridge or a bomb shell (Para.0064 and FIG 2C, label 26); and a laser light transmitter attached to the gun for shooting a laser light toward a target (FIG 2B, label 31), wherein the laser light transmitter receives triggering signal so as to shoot a laser light (Para.0265 and Para.268) and simulate that a target has been hit if the shot laser light is incident to a detecting element mounted on the target (Para.302 and Para.304).

Bartsch does not explicitly disclose, percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal.

However, Marsac discloses a video game apparatus for shooting game that teaches, a percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal and a percussion signal input means (Para.0030, Para.0035 and Para.0036).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to modify the invention of Bartsch in view of Marsac by incorporating an electric motor into the system that produces vibration, in order to

simulate the hammering or vibration generated by an actual weapon during firing so that the trainee would have a more realistic shooting experience.

Note that with regard to the limitation "the percussion signal output means being a cable lead wire electrically connected to the laser light transmitter for transmitting the percussion signal to the laser light transmitter", the reference also describes that Bartsch's simulator system comprises a port that includes a magazine sensor for connecting the magazine to the simulated firearm (FIG 2C, labels 26 and 27), and a trigger sensor that detects movement or actuation of the trigger (Para.0045). The reference further describes that the trigger sensor is coupled to a processor, which is in turn coupled to the magazine sensor (see Para.0154, lines 5-12).

Therefore, one of ordinary skill in the art (at the time of the invention was made) would readily recognize the fact from the teaching of the reference that Bartsch's simulation system incorporates a signal output means that communicates the output signal from trigger sensor to the processor, and a signal input means that receives and communicates the signal from the processor to the magazine, in order to activate the magazine and generate a laser signal that simulates the firing of a shot. Thus, Bartsch implicitly teaches the above claimed features.

Moreover, it requires only a routine skill in the art (at the time of the invention was made) to connect one or more elements of the system using wire or wireless mediums.

Bartsch in view Marsac of does not explicitly disclose, the laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal.

However, Cheshelski discloses a retrofittable laser and recoil system for a firearm that teaches, a laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal (col.35, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of Cheshelski by incorporating a signal conversion interface (such as an analog-to-digital/digital-to-analog interface) into the system, in order to provide the proper signal to the laser module so that the laser module would always fire a laser shot having the correct pulse width (i.e. a laser shot having the correct duration) when the trigger is activated; thereby making the system more efficient and responsive.

Regarding claim 56, Bartsch discloses the following claimed limitations: a gun simulation system (Para.0001) comprising a housing inserted and fixed into a magazine insertion section of the gun, and the housing has any one shape of a magazine, a cartridge or a bomb shell (Para.0064 and FIG 2C, label 26), and a laser light transmitter attached to the gun for shooting a laser light toward a target (FIG 2B, label 31), wherein a triggering signal output means generates a triggering signal to be transmitted to the laser light transmitter, the laser light transmitter receives the triggering signal so as to shoot a laser light (Para.0265 and Para.268), and simulate that a target has been hit if the shot laser light is incident to a detecting element mounted on the target (Para.0302 and Para.0304).

Bartsch does not explicitly disclose, percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal

output means for outputting the generated percussion signal; the percussion signal output means generates a wireless percussion signal to be wirelessly transmitted to the laser light transmitter; and the laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal.

However, Marsac discloses a video game apparatus for shooting game that teaches, a percussion signal generation means for generating a percussion signal when a trigger of a gun is pulled, percussion signal output means for outputting the generated percussion signal and a percussion signal input means (Para.0030, Para.0035 and Para.0036).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to modify the invention of Bartsch in view of Marsac by incorporating an electric motor into the system that produces vibration, in order to simulate the hammering or vibration generated by an actual weapon during firing so that the trainee would have a more realistic shooting experience.

Bartsch in view of Marsac does not explicitly teach, the percussion signal output means generates a wireless percussion signal to be wirelessly transmitted to the laser light transmitter; and the laser light transmitter converts the percussion signal to a digital signal so as to shoot a laser light based on the converted signal.

However, Cheshelski discloses a retrofittable laser and recoil system for a firearm that teaches, a signal output means that generates a wireless signal to be wirelessly transmitted to the laser light transmitter (see e.g. col.23, lines 38-53); and the

laser light transmitter converts the signal to a digital signal so as to shoot a laser light based on the converted signal (col.35, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Bartsch in view of in view of Marsac and further in view of Cheshelski by incorporating an intelligent magazine that contains a wireless communication module into the system, in order to minimize the error and complexity of the shooting circuitry due to multiple wire connections; and also by incorporating a signal conversion interface (such as an analog-to-digital/digital-to-analog interface) in order to provide the proper signal to the laser module so that the laser module would always fire a laser shot having the correct pulse width (i.e. a laser shot having the correct duration) when the trigger is activated; thereby making the system more efficient and responsive.

Response to Arguments.

7. Applicant's arguments filled on 03/29/2011 have been fully considered. In the remarks, Applicant argues that,

(1) Regarding the rejection of Claims 36 and 37 under § 112, first paragraph, the Examiner contends that the claims fail to comply with the enablement requirement. Specifically, the Examiner contends that the Specification describes the shape of the "supporting means" but does not describe what the "supporting means" is.

As described in MPEP § 2164.01, the standard for determining whether the specification meets the enablement requirement is whether the experimentation needed to practice the invention is undue. In re Wands, 858 F.2d 731,737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

According to *In re Bowen*, 492 F.2d 859, 862-63, 181 USPQ 48, 51 (CCPA 1974), the minimal requirement is for the examiner to give reasons for the uncertainty of the enablement . . .

- In response to argument (1), the Examiner respectfully disagrees. Since the current disclosure does not describe (or even mention) any relevant structure or material with regard to the "supporting means", this results undue experimentation because the artisan has to develop a proper material or structure that does not disrupt the system's structural and/or functional limitation(s). In such cases, the artisan may need to consider several factors (such as weight, strength, elasticity, length, etc.) of the material even before developing the required supporting structure. Even additional factors may be needed to be considered based on the location of the "supporting means" and its link to other critical elements of the simulation system (e.g. due to its link with the piezoelectric element and the protection frame: FIG 23, labels 102 and 106). Such activities usually require repeated practice that may include multiple trial and error operations (i.e. excessive experimentation). Therefore, the Examiner concludes that the specification, as originally filed, does not have sufficient written description that enables one of ordinary skill in the art to make and or use the claimed invention, at least for the reasons discussed above.
- With regard to Applicant's remark concerning the percussion signal generator or percussion signal generation means, a new ground of rejection has been presented in this current office action that addresses Applicant's arguments; and therefore. Applicant's arguments are now moot in views of the new grounds of rejection.

However, with respect to claim 45, Applicant has not claimed any "percussion signal generation means" except for merely reciting, for example, "percussion signal input means for receiving **a percussion signal generated by pulling of a trigger of the gun**". That means, according to this claim, the action of pulling of the trigger is interpreted as the generation of a percussion signal since such action would cause the trigger to move and hit or strike a contact surface. Therefore, Applicant's argument in this regard is not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruk A. Gebremichael whose telephone number is (571) 270-3079. The examiner can normally be reached on Monday to Friday (7:30AM-5:00PM) ALT. Friday OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xuan Thai can be reached on (571) 272-7147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bruk A Gebremichael/
Examiner, Art Unit 3715